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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/896,616	06/30/2001	Tyler A. Lowrey	42390P11412	7217

21906 7590 12/04/2002

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EXAMINER

PERT, EVAN T

ART UNIT	PAPER NUMBER
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2829

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/896,616

Applicant(s)

LOWREY, TYLER A.

Examiner

Evan T. Pert

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 and 13-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 7-12 in Paper No. 6 is acknowledged. Accordingly, claims 1-6 and 13-18 are withdrawn from consideration as being drawn to non-elected inventions.

Drawings

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

As evidence that Fig. 1 shows only that which is old see, for example, Fig. 1 of U.S. Patent 4,569,120 to Stacy et al. [with anti-fuses 20 comprising chalcogenide material per col. 1, lines 52-59].

A proposed drawing correction or corrected drawings are required in reply to the Office action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9, 11 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9

Claim 9 seemingly contradicts claim 7, from which claim 9 depends, since “the conductor” is recited as being “in contact” with “the programmable material” in claim 7, but is then seemingly contrarily “not in contact” in claim 9 where a “barrier material” seemingly would inherently *prevent* contact by inherently intervening “between”.

Claim 11

Claim 11 recites that “the spacer” is formed *from* “the dielectric”, but “the dielectric” is recited earlier as “the dielectric with the opening”, so it is unclear how the spacer is formed “from the dielectric”. For purposes of examination, “the spacer” is considered as being etched from a dielectric layer different and distinguishable from “the dielectric” already recited in independent claim 7.

Claim 12

In claim 12, the “material” is seemingly recited to *include* a memory element, which doesn’t seem to make sense since “the chalcogenide material” is a *sub-part* of a “memory cell”, and does not reasonably *include* the cell, but rather the cell includes the chalcogenide material.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 7-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Zahorik et al. (U.S. Patent 5,789,277).

Claim 7

'277 discloses "an apparatus" [chalcogenide memory cell array] comprising: "a contact on a substrate" [as in an electrical interface at surface 40 at the bottom of a "contact hole (opening)" in view of col. 7, line 23]; a "dielectric 10 on the contact with opening (hole) exposing the contact" [e.g., breadth X_1 in Fig. 2]; a programmable material 130 "on the contact" [since the plain meaning of "on" does not necessarily require *direct contact*]; and a conductor 120 "in contact with the programmable material 130".

Claim 8

'277 discloses "spacer" 80/100 inherently meeting the "first" and "second" contact area limitations recited in claim 8.

Claim 9

The '277 patent discloses that conductor 120 in contact with material 130 is inherently a "barrier material" (such as "TiN" per col. 8 line 35 in view of statement of inherency at col. 9, line 59), but in view of the rejection under 35 USC 112, it is actually unclear exactly how the barrier layer is situated in applicant's claimed invention.

Claim 10

The '277 inherently teaches signal lines and isolation devices (i.e. "diodes" like applicant's Fig. 1) between the contacts and the signal lines to "perform read/write operations from/to individual chalcogenide memory cells" [col. 10, lines 7-14] such "operations" inherently occurring by electrical signals sent to the upper and lower electrode grids [per col. 9, lines 51-53 and col. 7, lines 14-16] which correspond to the vertical and horizontal lines 10 and 20 in applicant's Fig. 1.

Claim 11

'277 teaches silicon nitride anisotropically etched to form spacers 80 [visible as the transition from Fig. 5 to Fig. 6].

Claim 12

Material 130 is a chalcogenide and '277 discloses the invention as being specifically drawn to "chalcogenide memory devices" [title].

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Evan T. Pert whose telephone number is 703-306-5689. The examiner can normally be reached on M-F (7:00-3:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 703-308-1233. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

ETP
December 1, 2002


EVAN PERT